



THOMAS G. NEWMAN,
EDITOR.

Vol. XXIV. July 18, 1888. No. 29.

EDITORIAL BUZZINGS.

Raise the pickens for the chickens,
Raise the baby on your knee,
But never raise a rumpus
With a nimble honey-bee.

Don't you slight him, don't you fight him,
Even on your own domain;
If you do it, you will rue it
While you wrestle with a pain.

Don't you boss him, don't you cross him
When the flowers are in bloom;
If you meet him, try to greet him
With respect and lots of room.

We Regret to learn that Mrs. L. Harrison has been quite seriously ill. Her last letter to us was written while propped up in bed, with a bowl of ice and a spoon in it by her side. She is convalescing now, and we hope will soon be well again.

Honey Prospects.—Mr. C. H. Dibern, of Milan, Ill., in a letter just received, gives this as his opinion concerning the prospect of a honey crop for this year:

About one-half of my colonies have swarmed, and most of them are now working in the sections. Sweet clover is now in full bloom, and the bees are just swarming on it. Basswood is about done blooming, and there is not much white clover, but I think it will come out again in August. I think the prospect for a large fall crop are very good.

Concerning the prospects in Canada for a honey crop, Mr. R. F. Holtermann, Brantford, writes as follows:

The clover in Canada is a complete failure. We shall not have on an average 4 pounds to the colony. Basswood may yield well in the western counties, but in the eastern counties I doubt if it will do so, because the drouth is so great. The pasture fields are all bare, and cattle are starving. We shall have a poor yield generally, I feel certain. Basswood here is just opening.

To Prevent Stings.—Nearly every one is aware that the human body is covered with many thousands of tiny pores in the skin, and that health depends largely upon keeping these pores open by frequent bathing. From the facts given by W. L. Wilder, in a recent number of *Science*, it would appear that these pores are so many mouths, capable of opening and closing in unison with the action of the lungs. Mr. Wilder says:

It is a fact not generally known that if one holds his breath, wasps, bees and hornets can be handled with impunity. The skin becomes sting-proof, and, holding the insect by the feet, and giving her full liberty of action, you can see her drive her weapon against the impenetrable surface with a force that lifts her body with every stroke, but let the smallest quantity of air escape from the lungs, and the sting will penetrate at once. I have never seen an exception to this in 25 years' observation. I have taught young ladies with very delicate hands to astonish their friends by the performance of this feat, and I saw one so severely stung as to require the services of a physician, through laughing at a witty remark of her sister, forgetting that laughing required breath. For a theory in explanation I am led to believe that holding the breath partially closes the pores of the skin. My experiments in that direction have not been exact enough to be of any scientific value, but I am satisfied that it very sensibly affects the amount of insensible perspiration.

We have repeatedly called attention to the fact that it has been proven that any one can prevent being stung by holding the breath. If it is a fact, as Mr. Wilder avers, that the lungs and pores act in concert, and that when breathing the pores open and close involuntarily, then the peculiarity of the situation is fully explained. We would commend this subject to the attention of the physicians and scientists of whom there are hundreds on our subscription list. Let some experiments be made to test the matter most fully, and then let our readers learn the results in detail.

Open-Side Sections.—Mr. Walter S. Ponder, of Groesbeck, O., has sent us a sample of his new sections. They are nicely made, and show a considerable amount of ingenuity, but as they could not be used in the T-super and ordinary crate there will be but little chance for them to come into use. Another point is that four-piece sections are driven out of use by the one-piece sections, and no four-piece sections can now fill the demand for these useful receptacles.

Study and Labor are the means leading to success and profit in apiculture. This is how the *Rural Canadian* puts it:

The subject of honey and marketing is one which concerns nearly every bee-keeper, and very properly too, because in these, aside from pleasure, rests the just reward of study and labor, for it is fallacy to think that without study and labor in bee-keeping, as in all other pursuits, any great results can be accomplished. In marketing honey it should never be forgotten that a good article, in an attractive form, will always command the highest price, the best reputation and a steady demand.

Astonishing.—The July number of the *Bee-Keepers' Magazine* makes a strange blunder. Everybody knows that the AMERICAN BEE JOURNAL and *Gleanings* have for years been making a vigorous fight against adulteration. The *Magazine* must have been sleeping, and having just awakened from a troublesome dream, perhaps, imagines that we have been on the other side of this question. In its July number it says:

We are at a loss to know why *Gleanings* and the AMERICAN BEE JOURNAL should take sides with the adulterators who are ruining the honey market of America.

And so are everybody else "at a loss to know" it—for it is *not so*! No sane man would ever think of such a thing.

All this is in reference to the "Report of the Dairy Commissioner of New Jersey," on the purity of honey, as published on page 387, and there commented upon. The *MAGAZINE* further says:

By referring to page 108 of the *MAGAZINE*, it will be noted that at the head of the results of the analysis are placed the words, "strained honey," and that the words "comb honey" was simply the legend on the label. Men who adulterate will not hesitate to lie.

The labels on this bottled honey, are as great a lie as any Wiley ever told, and yet Mr. Newman and Mr. Root both call the man who put up this vile trash, "honorable men." Shame on you, brother editors! We do not impute to you dishonorable motives in taking sides with these rascals, but simply believe you do so through ignorance. We propose to fight adulteration whenever and wherever it appears.

We repudiate the imputation—and positively deny that we called the persons who put up the honey in question "honorable gentlemen." Let the proof be presented, or Brother Aspinwall must take it back as an "honorable gentleman." We regret that the *Magazine* should have made the unkind allusions. Though it was the only bee-periodical which published the "Report" in question, we refrained from making any unkind remarks upon that fact, because we desired a continuance of the pleasant relations then existing between the editors of all the bee-papers.

Surely, "it would seem that when a man performs a kindness, he seldom gets any credit for it"—as the *Magazine* says at the head of the article.

Mr. J. T. Wilson, of Nicholasville, Ky., has a very pleasant notice in the *Jessamine, Ky., Journal* for June 15. After reviewing his queen-rearing facilities, and the location of his apiary and surroundings, the *Journal* says that the care of his bees takes up the greater portion of Mr. Wilson's time. It is a business requiring intelligence, watchfulness and patience. He says that this immediate neighborhood is not the most favorable for bees and honey. The land is too closely cultivated. He prefers the vicinity of creeks and rivers, and lands with trees and undergrowth.

Scatter the Leaflets.—Look at the list (with prices) on the second page.

GLEAMS OF NEWS.

Bees Clustered on a Cow's Back.—Mr. E. C. Jordan, of Jordan's Springs, Va., has sent us the following items taken from the Campbell County, Va., *Record*. The first dated June 7, 1888, reads as follows:

We are informed that a cow belonging to Mr. Craddock, near Winfall, came up one evening not long ago with a whole swarm of bees quietly settled on her back. We did not learn whether Mr. Craddock succeeded in hiving the bees.

We have heard of the prognostic swarm of bees that settled on the lips of Plato. Virgil told us how, when the stock was lost, a new supply was obtained by slaying four heifers and four bullocks, and leaving their carcasses in a grove for nine days, when, behold! they were found filled with bees, and the grove resonant with their hum. The Bible tells us how Samson found honey and bees in the carcass of the dead lion. But this is the first time we ever heard of bees selecting the back of a living cow for their resting place.

The second, published a week later, reads thus:

Several persons have expressed to us their incredulity with regard to that swarm of bees on the cow's back, reported last week. We are authorized by Mr. David Craddock, the owner of the cow, to say that the facts as stated are absolutely true. His wife milked the cow while the bees were yet on her back. They remained four or five hours, and then sought other quarters.

How Bees Make Cells.—In *Murray's Magazine* we find the following explanation of the geometrical forms which the cells of a honey-comb assume:

Recent measurements and observations have tended to dissipate the cell myth, and to show not only that the honey-comb is far from regular, but that such regularity as it has is due merely to mechanical conditions.

Mr. Frank Cheshire tells us in his recent volume, that careful measurements of the finest pieces of comb, built with every advantage for securing regularity, show that, so far from every cell being geometrically accurate, it is difficult to find a hexagon presenting errors of less than three or four degrees in its angles. On the other hand, there is a growing tendency to accept a modification of Buffon's explanation of the origin of cell structure. Buffon attributed the regularity of the cells to mutual pressure; in illustration whereof he packed a closed vessel with dried peas and filled up the interstices with water. The peas, which were thus caused to swell, assumed, under the pressure which resulted, the form of more or less accurate geometrical figures.

Perhaps a still better illustration of this principle of mutual inter-action is seen in soap-bubbles. If a little soapy water is placed in the bottom of a tumbler and air be blown into the water through a tube until the upper part of the glass is full of bubbles, the hexagonal form which these bubbles assume under mutual pressure, and the triangular pyramids at their bases, will be readily seen. Not that these geometrical figures are the same as those which the wax assumes, but they illustrate the principle. For, at the temperature of the hive, the wax, pared thin by the smooth-edged jaws of the workers, has all the plasticity of a fluid membrane. The bee has indeed to avoid the danger of paring away too far, and thus

making a hole through the wall. But even here it may be aided by mechanical conditions.

If we take a thin piece of soap and pare away one face with the blade of a pocket-knife, we shall soon form a transparent patch where the soap is very thin. But if we continue to pare we do not cut through the soap at this point; but for a time at least, we merely enlarge the area of the transparent patch. The thin film of soap yields at this point, and the stress of the blade falls on thicker and less yielding edges. Some such mechanical yielding of the wax may guide the bee in its work.

Honey Harvest Closed in Alabama.—B. B. Toney, Padgett, Ala., on July 6, 1888, gives this information concerning the honey harvest of Alabama, and that locality as a profitable place for bee-keeping:

I closed my honey harvest yesterday for the year 1888. I commenced in the spring with 120 colonies of bees, about 20 colonies were weak, and 100 were strong and populous. I have not finished measuring yet, but my crop will go to about 1,000 gallons when done. This makes an average of about 8½ gallons, spring count. Quite a large number of colonies gathered from 12 to 14 gallons each. Our poplar was the largest flow, and the quality of the honey fine, thick, and well flavored. The linden was only one-half of a crop, but very good. This year is the best for honey that we ever had. Of this I expect to sell 800 gallons.

This county lies in the northeast corner of Alabama, and is without doubt the best for bees in the State. If any one wishes to locate in Alabama, let him come and see before locating. Perhaps the rough mountains will fright him away. Its roughness is the secret of my success. This is in answer to Mr. Geo. W. Morris' request on page 332 of the BEE JOURNAL.

Investments in Bee-Keeping.

The following are given in a late number of the *City and Country*, as the statistical items concerning bee-keeping:

Statistics show that the total amount of honey produced annually in America is estimated at 120,000,000 pounds, which at the average of 15 cents per pound, places the value of the products in first hands at \$18,000,000. The product of the hives is not the only thing valuable about this industry, evidenced by the fact that the colonies in this country number over 3,000,000. At the average price of \$11 per colony their value would be \$33,000,000. This sum added to the total product of the hives make the total involved \$51,000,000. The United States and Canada produces the bulk of the product.

The average price of honey at wholesale is not now over 10 cents per pound, when counting the whole crop of both comb and extracted; and \$11.00 per colony for bees is double the amount of their value.

Chapman Honey Plant.—Mr. L. Highbarger, Leaf River, Ill., on July 7, 1888, says:

Those who have the Chapman honey plant should examine it closely, as there is a worm that is cutting the balls off. It resembles a caterpillar, but is whitish in color. It does its work very quickly, and needs looking after every day. A friend of mine tells me that it is destroying his plant, and he lives five miles from here.

Recipes for Honey-Cakes, etc.—J. W. Tefft has sent us a lot of recipes for making honey-cakes, etc., which we publish for the benefit of our readers. The use of honey in making cakes, cookies, and other fine articles of food, has long been practiced, and some of the nicest we ever ate were made with honey. We wish that honey was more generally used than it is in making such articles. Here are the recipes:

HICKORY CAKE.—Stir one cup of honey and one-half cup of butter to a cream; add the yolks of four eggs beaten up, one-half cup of sweet milk, two cups of flour, one tea-spoonful cream-of-tartar, one-half tea-spoonful of soda, whites of eggs well beaten, one coffee-cup of hickory nuts, a blanched almond chopped fine, and one coffee-cup of raisins.

BRIDE'S CAKE.—One cup of butter, two cups of honey, three and one-half cups of flour, one cup of corn-starch, one cup sweet milk, and the whites of six eggs beaten to a stiff froth. Beat the honey and butter to a cream, then add the starch and flour, and two tea-spoonfuls of cream-of-tartar mixed in flour, and one of soda in the milk. Put the eggs in the last thing.

ANGEL CAKE.—One and one-half cups of white honey, the same amount of flour, one tea-spoonful of cream-of-tartar, one of Coulton's vanilla, the whites of eleven eggs; sift the flour four times, add the cream-of-tartar and sift again. Beat the eggs to a stiff froth, add the honey, beat lightly, then add the flour. Do not stop beating until you put it in the pan. Bake moderately.

PUMPKIN OR SQUASH PIE.—Pare and stew a pumpkin or squash until it is soft and dry. It must be done slowly at the last to prevent scorching. Put through a colander, and to one cupful of the sifted pumpkin add one egg, four table-spoonfuls of honey, a pinch of salt, one tea-spoonful of ginger or cinnamon, and one pint of milk. This will fill one pie on a large plate. Make a crust as for any pie, and turn the edge under on the plate, pinching in shape to form the rim, but make it thin and delicate. Bake slowly until of a golden brown.

Then Mr. Tefft offers the following suggestions concerning the systematic use of honey, and its desirable effect on the system:

Sweeten your tea and coffee with extracted honey. It is a true brain and nerve food and tonic. It gives refreshment and nutriment to the mental and physical exhaustion, and tired and confused brain; gives new life to the weak and debilitated, relieves nervousness from excess or any causes; improves the appetite, tones the system, and has proven to be of great value in many diseases, producing a contraction of the muscles of the digestive organs; and as an aid to digestion it is wonderful in building up lost power. It would be difficult to conceive of anything more nourishing and strengthening, creamy and delicious. For nursing mothers it is highly recommended. For lung and throat diseases nothing can be better. It is a cheap remedy for the consumptive, and in fact it should take the place of sugar in many things.

Most Valuable to the horticulturists, is what the *Farm, Field and Stockman* says of the honey-bee. Here is an item from its last issue:

The bee is the friend of horticulturists and agriculturists, and as there is no insect that increases in such vast numbers so early in the spring, when their services are so much needed, they are of more value to the farmer, gardener and fruit-grower than all other insects.

Humorous.—Mr. Eugene Secor writes from Lime Valley Apiary, Forest City, Iowa, on July 9, 1888, in this humorous strain:

THOS. G. NEWMAN—My Dear Sir and Friend:—I enclose a draft for \$1.00, and my vote for officers of the National Beekeepers' Union for the next year. As a general thing I am opposed to the principle of holding remunerative office for more than three terms, but in your cases I have such high regard and warm personal feeling for you, that I am willing for you all to enjoy the fat salaries another term. After you all get rich from the official emoluments, I expect you to form a Trust, and buy all the honey offered at less than 30 cents per pound.

So far as the Manager is concerned, he would be delighted to pass over the duties and "fat salaries" (often consisting of vigorous kicks and abuse) to some person who has more time to gratuitously devote to the management of the Union's affairs. He has given months of time to the Union, besides paying yearly dues like any other member. Why not put Brother Secor in that place for one year at least? He is a lawyer, a gentleman, a scholar, and a poet; and is eminently fitted to fill the place honorably—and when he gets rich on the emoluments of the office, he can form the "Trust" himself, and buy all the honey in the world—we shall certainly vote for Brother Secor.

We know the other officers would like a change—a chance to divide the honors and "fat salaries" with some others. Let us have a change all around. A change sometimes works wonders, and may give us 2,000 members during the coming year. Try it.

Rushing Honey to Market.—The National Stockman remarks as follows concerning the above subject:

Many make a mistake by rushing their honey upon the market as soon as it is obtained. Honey is not a perishable article, and during the latter part of summer, while fruits are plenty, is the dullest part of the season for the sale of honey. Better be putting in your time arranging and putting your honey in the best possible shape; just as though it was your intention to keep it for one year at least. There will be nothing lost if you improve your time in this manner.

A Young Man residing near Ettrick, Wis., while hunting early this month, saw a swarm of passing bees, and fired his gun at them. At once they settled on him, stinging him so badly that he died within an hour. Hunters should not attempt to interfere with a passing swarm of bees. If numbers count, especially when all are armed, it is an unequal contest, especially when the hunter was not posted as to the means of defending himself by creating a smoke. As hunters have no mercy on harmless and innocent birds and animals, they cannot complain when their merciless attacks meet with a vigorous response.

Your Full Address, plainly written, is very essential in order to avoid mistakes.

INTERROGATORIES.

Wood Sage.—Dana Twining, Green Garden, Ills., on July 10, 1888, writes as follows:

I enclose a stalk of a plant that I would be pleased to have you name. I see but little of it in this vicinity, but the bees are making good use of that little. Bees are gathering but a little surplus, and that mostly from red clover.

[It is wood sage, *Teucrium Canadense*, sometimes called American germander, and has purple flowrets. It is of the mint family, grows along small streams, and is a favorite with the bees.—ED.]

Sweet Clover.—T. F. Hawley, of Eureka Springs, Ark., on June 27, 1888, asks the following questions about this excellent honey plant:

1. Is the bloom yellow or white? Is it a fine bee-plant? 2. Will it thrive on a steep gravelly hillside that has an eastern slope? 3. I enclose a sprig of a plant growing here that I suppose to be sweet clover. The bloom is small, and bright yellow. It comes up year after year on the same plot of ground. Please give me as good an idea as possible of mellilot, that I may know it when I see it, and also if bee-keepers value it much.

1. There are two kinds of sweet clover. *Mellilotus alba* has a white flower, while *Mellilotus officinalis* has little pendant yellow flowers; in both, the flowers are disposed in delicate elongated racemes, exhale an agreeable odor, and both are very rich in nectar.

2. It will generally grow anywhere except on a flat rock.

3. The sprig sent with this query is from the yellow variety. The plants are assiduously frequented by the bees, come up year after year on the same ground if sown twice on the same place (it being a biennial), and will last until long after frost and snow comes in the fall.

Foul Brood.—A. D. Lord, Amlret, Minn., on June 23, 1888, asks:

How do you detect the first appearance of foul brood. I have one colony among 9 that the brood is very scattering in the comb, and about one-half die and turn black when nearly ready to cap. If not foul brood, what is it?

What is erroneously called foul brood is a disease which attacks not only the brood (sealed and unsealed), but also the full-grown bees, and even the queen is sometimes affected by it. It is usually said that "you will always find the cells sunken, and a small hole the size of a pin-head in the centre of the comb looking brown and bad;" that the "foul stench arising from the diseased colony" will indicate the disease, but there are so many different shades and kinds of the disease that these are not the only indications. Sometimes brood, which to all outward appearance is sound

and healthy, upon closer inspection will reveal the disease which has not yet attained the condition of sickening stench which is found in brood thoroughly ropy and rotten. When it has reached the latter condition, the only remedy we could advise would be fire to utterly consume bees, hives, combs, and honey.

In the milder forms of the disease, pure phenol is no doubt the best remedy. But as it is difficult to obtain the pure article except at the large wholesale dealers, it can be obtained at the office of the AMERICAN BEE JOURNAL. One drop to 500 drops of the syrup is the formula recommended by Mr. Cheshire, as will be seen by the following from his pamphlet:

"I found that 1-200 (that is one part of pure phenol to 200 parts of syrup) was refused by the bees altogether; that 1-400 might be given constantly to a sound colony without appearing to limit the queen in breeding, or touch her health; that 1-500 dispatched foul brood quickly, even while honey was coming in; and that 1-750 appeared enough when it was not. I have established these quantities as the correct ones." Moderate quantities are, therefore, not injurious.

We would refer Mr. Lord to the Report of Mr. McLain, found on pages 473 and 474 of this issue, which gives another remedy for this much-to-be-dreaded disease.

Honey from Corn, etc.—James B. Riggins, Swanton, Nebr., on July 11, 1888, asks the following questions:

I started last spring with 18 colonies of bees. I had no increase, and obtained 1,300 pounds of comb honey. All but one came through the winter of 1887 in good condition. They are booming on Alsike clover now. The outlook is very good for a large honey crop. I received some of the Chapman honey-plant seed, and it is growing nicely now. I would like to ask whether broom-corn ever yields much honey?

Corn, when in silk and tassel, ordinarily yields both honey and pollen in good quantities. The honey is of fair quality. In some localities and seasons it has been the sole honey-producer upon which bees could work in the fall, and build up for winter.—Will some one tell us about broom-corn? Does it yield honey or pollen?

Pleased.—Mr. W. F. Kanzler, of Fulda, Ind., on July 6, 1888, writes as follows about royal jelly, larval bees, etc.:

A thousand thanks for the article on "Larval Bees," on page 440. The valuable AMERICAN BEE JOURNAL steps on the high platform of scientific research, and thereby honors itself. Prof. A. J. Cook showed himself the greatest reformer, for he could reform himself. Mr. Stachelhausen, of Texas, gives a sample of his learning in apiculture, and will probably enlighten us hereafter. All nonsensical talk will now stop about royal jelly, stating that it is "young brood in the white state," "I saw legs and breasts plainly in it," (see the BEE JOURNAL for 1881, page 183, third column, 16th line from the top), and even the "bread-and-butter-men" will be pleased to learn how young bees are fed and nourished, and how old bees prepare their food.

QUERIES & REPLIES.

Building a Bee-House.

Written for the American Bee Journal

Query 560.—1. I propose to build a bee-cellar in the following manner: My apiary is on high, sandy land, and descends about 1 foot in 15. Commence on the lower side and excavate on a level 4½ feet for the entrance-way, with an outer and an inner door. Then excavate 27 feet and 2 inches by 7 feet and 8 inches, for the cellar proper. Build a sod wall on the margin of the cellar 1 foot in thickness, and in height 7 feet from the bottom of the cellar. Build a second wall outside of the first, with 10 inches of air-space between them. The plates to support the shingled roof are to rest on cedar posts set in the ground outside, and on a level with the sod walls. Cut gains in plates for joists to support a double floor overhead, covered with 2 feet of sawdust. The outside of the posts are to be rough boarded. It will have no windows, and be ventilated with two 3-inch iron pipes, one passing through the wall near the door 1 foot above the cellar bottom, leading into the open air, and the other just passing through the floor overhead, from the attic above. Will such a repository be a suitable one for wintering bees?—Mich.

Yes.—H. D. CUTTING.

I should think so.—G. L. TINKER.

Yes, if dry.—DADANT & SON.

I think it would.—J. P. H. BROWN.

It will do nicely.—C. H. DIBBERN.

As I understand your description, it certainly will.—J. M. HAMBAUGH.

I see no reason why it would not.—EUGENE SECOR.

Yes; but I think you can dispense with one-half of the sawdust.—MRS. L. HARRISON.

Yes, but I would have the ventilators so arranged that they could be closed and opened at will.—A. B. MASON.

I have no experience with cellar or in-door wintering of bees, and so I am not prepared to give an opinion.—M. MAHIN.

I always winter my bees on the summer stands, so I have no practical knowledge on the subject.—J. E. POND.

I have to leave this Query to those who have experience with cellar-wintering, as in the South we have no use for them for wintering bees.—P. L. VIALON.

If I understand you, your building will be a house rather than a cellar, as the bottom is only about 2 feet below the surface of the ground at the deepest part. Something more underground, I think, would be better.—C. C. MILLER.

I should say that it would answer very well, but at the present time I think that the iron pipes for ventilation are not necessary. Three years of experience tells me that such a cellar needs no special ventilation, more than comes through the ground.—G. M. DOOLITTLE.

It all depends upon how thoroughly the work is done. I should not want to put bees in it until some one else

had tested it. It is too much above ground, and sod walls, I fear, are too unstable. Make a radical change in your plan.—R. L. TAYLOR.

Yes, and if they do not have the diarrhea, which depends mainly upon their food, they will come out in first-rate condition in the spring.—JAMES HEDDON.

Such an arrangement in this climate would be so damp that everything would mold and decay in a very short time. In your Michigan climate, where the air carries less moisture in winter, your repository may winter bees all right.—G. W. DEMAREE.

I think that the cellar described would be a good one, if you can keep the rats and mice out of it. The ventilating tubes seem small to me. I would prefer them 6 inches in diameter, with a contrivance to entirely close them in zero weather.—J. M. SHUCK.

I should think so. The thing to be gained is to keep the temperature above 38°. I have now wintered bees several years without loss. Last winter my cellar was down to 28°, and for weeks below freezing, and the loss was great. Cellars must be frost-proof.—A. J. COOK.

To dig deeper and have something more substantial than sod-walls, would be preferable—making it more of a cellar than a bee-house. The ventilating tubes should be so made that they can be closed or opened when desired—and they are also too small.—THE EDITOR.

Position of Bee-Spaces—Honey-Boards, etc.

Written for the American Bee Journal

Query 561.—1. In using T-supers without a honey-board, which is preferable—to have the bee-space made in the top of the brood-chamber, or in the bottom of the case? 2. What kind of a honey-board do you prefer? 3. How much space should there be between the ends of the top-bars and the hive, to guard as much as possible against the bees fastening the ends to the hive?—M.

1. I prefer the bee-space at the bottom of the section-case.—J. P. H. BROWN.

1. There is no difference. 2. A slatted queen-excluding honey-board. 3. Three-eighths of an inch.—A. J. COOK.

1. In the bottom of the case. 2. Wood slats with zinc queen-excluders between. 3. Five-sixteenths of an inch.—A. B. MASON.

1. I prefer the bee-space in the top of the brood-chamber. 2. If I have a honey-board at all, I prefer one composed of slats. 3. See Query 554, on page 422.—M. MAHIN.

I know nothing of the matter practically, as I have never used them.—J. E. POND.

1. On top of the brood apartment. 2. The slatted break-joint of wood. 3. Five-sixteenths of an inch.—MRS. L. HARRISON.

1. I prefer the space in the bottom of the case. 2. The Tinker improved wood-and-zinc. 3. One-thirty-second in this locality.—H. D. CUTTING.

1. At the top of the brood apartment. 2. Perforated zinc. 3. They will stick their glue more or less at any distance.—J. M. HAMBAUGH.

1. I use the bee-space at the top of the brood-chamber. 2. Wood and zinc combined. 3. I use 1-32 of an inch.—G. M. DOOLITTLE.

1. At the top of the brood-apartment; but I would not use them without a honey-board. 2. The Heddon slat honey-board. 3. One-sixteenth of an inch, and let them fasten.—C. C. MILLER.

1. At the top of the brood-apartment. 2. The Heddon slat break-joint until swarming, then a queen-excluder on the swarm. 3. Bee-space, or ¼ of an inch.—EUGENE SECOR.

1. Either will do, and there is but little difference in handling. 2. A slatted board with 3-16-inch spaces between the slats. 3. See Query 554.—C. H. DIBBERN.

1. I would prefer to have the spaces at the bottom of the case, although it is generally used the other way; but either does not make any difference. 2. A perforated-zinc honey-board. 3. Three-eighths of an inch.—P. L. VIALON.

1. I do not think it would make any difference. I would not want to use a T-super without a honey-board. 2. I prefer a wood-and-zinc honey-board. 3. Not over 1-16 of an inch.—G. L. TINKER.

1. I would prefer it in the bottom of the case, if I could use no honey-board. 2. I prefer the slatted honey-board described on page 297. 3. Make the top-bars of the frames pointed, and allow them to just touch the ends of the hive.—J. M. SHUCK.

1. So far as results are concerned, consult your tastes; but how could you easily put a cover on a brood-chamber full of bees, with no space over the frames? 2. The Heddon slatted honey-board with strips of queen-excluding zinc between the slats. 3. I prefer 1-32 of an inch.—R. L. TAYLOR.

1. I prefer to have half of the mechanical bee-space at the bottom and top of the cases; and have the top of the brood-chamber reduced to half the usual bee-space. 2. A horizontal di-

vision-board made of perforated zinc, with a wood rim 3-16 of an inch (half a bee-space) above the plane of the sheet, on each side. Mr. John S. Reese, of Kentucky, who has a perforating machine, has improved the zinc queen-excluding honey-board by perforating the sheets in rows, so as to come right over the centres of the top-bars of the frames, thus insuring a perfect break in the upward passways. I like his plan the best of all. 3. Three-eighths of an inch.—G. W. DEMAREE.

1. At the top of the brood-apartment, to take the cover when the surplus cases are not on, and to take a cover to the T-super, which must not have two bee-spaces, or how about tiering them? 2. My own; that is, one containing the bee-space and break-joint principle. 3. One-fourth inch, or none to speak of.—JAMES HEDDON.

1. There is practically no difference—either place will do. 2. The slotted queen-excluding honey-board is preferable. 3. About $\frac{3}{8}$ of an inch.—THE EDITOR.

CORRESPONDENCE.

QUEEN-REARING.

How to Rear the very Best Queens.

Written for the American Bee Journal
BY WM. H. BALCH.

There has been very much written on this subject, yet not one has centered the mark. This is written in all kindness. I do not rear queens for sale, and I do not write this to start a controversy *pro* or *con* on artificially reared or naturally reared queens, but that the inexperienced may profit by what I have proven for many years.

All are well aware what queen-breeders say about naturally and artificially reared queens, and how much stress is laid on the "swarming impulse," larvæ three days old, strong colonies, and the first set of queen-cells reared in a colony, etc. In the AMERICAN BEE JOURNAL for May 16, 1888, is an article in which the writer says, "divide the colony." When I read that article, I felt a sympathy for the writer, and much more for those who read the article that have had small experience in queen-breeding, and expect good queens. I then thought that it was my duty to correct the error immediately.

It is a very simple and easy matter to divide a colony of bees, and rear a

lot of queen-cells; one that I *once* practiced until I found some of my queens died in three months, and many within one year. This caused vexation and loss, and I began to study and experiment, and from those experiments I have found that I could rear the *very best queens*. It is done in the following manner:

At any time when bees carry natural pollen, and the drones are out, or will be at the time the queens will be old enough to make her bridal tour (early in the spring, summer, or late in the season), take the queen from a strong colony, then wait eight days, and cut out every queen-cell and insert a frame of eggs, not larvæ. Be sure that there is not one egg hatched. This is the secret, not larvæ but eggs. About treble the number of queen-cells will be constructed, and the queens will be of the very best! The longest lived queens that I ever had, were reared according to the above method.

Oran, N. Y.

OLD QUEENS.

Shall We Supersede Old Queens Ourselves?

Written for Gleanings in Bee-Culture
BY O. O. POPPLETON.

The assertion, that bees know better when to do this work than we do, is in a certain sense true, and in other ways not true; for while they frequently supersede their queens before the apiarist can possibly detect any failure of the queen, or, at least, before he would detect it in the ordinary routine of work, they frequently retain failing queens, if allowed to do so, for months after they are nearly worthless; but all are agreed that such queens should be replaced by the bee-keeper. The fact that, in following any rule of superseding on account of age, we will sometimes destroy queens good for yet another season, is also true; but this is only one item to be considered in making a decision of what is best to do, and not the conclusive reason that the one who made it seemed to consider it was.

The entire question is one simply of profit and loss; that is, a question of which way costs the least. On the one hand we have the expense of furnishing the colonies with the young queens, which any one can easily determine for himself, and to this must be added the value of an occasional queen that would be destroyed that would be useful for yet another season. This last item is much less than many suppose it to be, and less than I sup-

posed it was until after I had closely observed the matter for several years. On the other hand, we have a material reduction of our honey crop, resulting from the failure of many old queens at a critical time of year.

In the northern States the time of year when such failure will lessen the amount of honey stored by the colony extends from late in the fall until about July 1 next; and it is practically impossible to detect this failure in time to entirely prevent the loss of honey.

The bees do very little superseding of their own accord at this season of the year; in fact, practically none at all of the queens that are commencing to fail, but not yet entirely so. At least nine-tenths of the superseding in my apiary in northern Iowa was done in the months of July and August.

To aid me in getting at the real facts in this matter as well as in others, I have always kept a complete record of all my queens, and have practiced clipping their wings. This last enabled me to keep a correct record of each queen, without any guess-work.

I soon noticed that those colonies whose queen was in her fourth season nearly always gave me less than the average amount of honey, and enough less, too, to much more than pay for the expenses of having given them young queens the fall before, and allow largely for the value of such good queens as might be killed while doing so. I never killed all of my third-season queens, although I think it would have paid to do so; but I always kept a few of the best ones, so I have had both kinds of queens to compare results from many years.

A colony which is very strong at the commencement of the honey-flow, will store more honey according to its numbers than will a medium strong one, and only queens in prime vigor can get their colonies strong by the time white clover commences to yield; and even if old and yet good, they are rarely ever as vigorous as are younger ones; and my main reliance for surplus honey was always on those colonies having queens in their second or third seasons.

It is quite a long while from the time brood-rearing ceases in the fall and the first of July following; and any failure of the queen during this time, even if only partial, seriously diminishes the number of mature bees the hive will contain during the honey harvest, and no failure of a queen can take place during this time that can be noticed by the apiarist, soon enough to prevent a serious reduction of the amount of brood that will be raised in time for the harvest.

A much larger production of colonies having old queens will be weak in

the spring than of those having younger queens; and as re-queening can be done so much cheaper and better in the fall than in the spring, I prefer to do it then, even if half the queens I destroy would be good for yet another year.

Many of our best apiarists—Doolittle, Hutchinson, and others, recommend the contraction system during swarming; but all seem to agree that swarms having old queens seem much more inclined to build drone comb than do others.

In speaking of old queens, I mean those that have done duty for three seasons, including the one in which they were reared. In rare cases I have known queens to do duty the fifth season; but a very large proportion will not do satisfactory work during their fourth season, a much larger proportion than many suppose is the case, unless they have specially observed this point for a number of years.

As already said, the question is one of relative profit and loss. On one hand we have the expense of the young queens, and the value of the few good queens that will be destroyed; on the other, we have the very material shrinkage of the honey crop, the probable loss of some colonies, etc., and there is no question in my mind that the last items exceed the first ones many times over.

Apartado 278, Havana, Cuba.

EXPERIMENTS.

A Report of Some Experiments in Apiculture.

Report to the Commissioner of Agriculture
BY N. W. M'LAIN.

The study of some forms of disease to which bees are subject, including an inquiry into the causes of disease, and the discovery and application of suitable remedies, has occupied much time, and the results from this line of investigation have been in a good degree successful and satisfactory.

The excellent classification and complete history which have been given of the micro-parasitical forms which affect the life and health of bees simplify diagnosis and facilitate the discovery and application of preventives and cures. Modern science has shown that it is often necessary to unlearn much of what was supposed to have passed beyond the region of doubt. The subject in hand furnishes no exception. It is not strange that there should be confusion and error in dealing with the origin and habits of these micro-organisms which baffle the skill

of the investigator. We are now collecting and tabulating data and testing theories in the crucible of experience, and while our investigations are incomplete, and many seemingly determined facts lack full confirmation, and while significant manifestations await interpretation, we must be slow in reaching conclusions. We may indeed be in the region of the knowledge we seek after, but we must hold the evidence under survey until many-sided experience fully determines its value.

Bacillus Alvei (Cheshire).

This disease, commonly but inappropriately called foul brood, is indigenous in all parts of the United States, and is infectious and virulent to the last degree. Concerning the origin of *Bacillus* and other allied organisms, but little is certainly known, but that the organism classified as *Bacillus alvei* is the active agent in the destruction of both bees and brood is certain, for this agent is always present, and although its action in the living organism is exceedingly complicated it is also well defined.

The symptoms of this disease may be more clearly described by contrasting the appearance of bees' brood and combs in a healthy colony with the diagnostic symptoms attending *Bacillus alvei*. The bees act as if discontented and discouraged; the combs commonly present a dingy, neglected, and untidy appearance, and a characteristic odor is present, sometimes not noticeable until the hive-cover is removed, at other times offensive at some distance from the hive. This odor is very like that emitted from glue which has been prepared for use, then put aside and allowed to ferment. Instead of the plump, white, smooth appearance common to healthy uncapped larvae, the membranes more or less wrinkled and shrunken, are streaked with yellow, which with the succeeding stages of the disease changes into a dingy, gray brown; then as putrefaction follows, the color becomes a dirty red brown. As evaporation progresses the mass settles to the lower side of the cell, and if the head of a pin be drawn through the mass, that which adheres appears quite stringy and elastic, the tracheæ and tougher tissues resisting decay adhering to the cell. Later nothing remains but a black, flat scale on the lower side near the bottom of the cell. If the disease does not assume the acute form before the pupa stage the brood is capped over, but the cell cap, commonly of a darker color than that covering a healthy brood, settles, leaving the cover concave instead of flat or convex, and shortly small holes appear, as if inquiry had been instituted

to learn the condition of the occupant, or to liberate the gases and odor and facilitate evaporation. Torn and ragged cell caps are frequent, and some cells may be empty and cleansed; and in the midst of ragged and sunken caps a live bee may occasionally emerge.

The means by which these deadly agents are commonly introduced into the hive and into the bodies of their victims has not been certainly determined. Prof. Frank R. Cheshire, F.L.S., F.R.M.S., to whom we are indebted for the classification of this species of *Bacillus*, and also for much that is valuable concerning its life history and pathogenic character, speaking of the means of propagating this disease, says (see *Bees and Bee-Keeping*, vol. 2, pp. 157, 158, London, 1888):

"My strong opinion is, that commonly neither honey nor pollen carry the disease, but that the feet and antennæ of the bees usually do." "It is also extremely likely that spores are carried in the air and taken in by the indraft set up by the fanners. There will be no difficulty in this supposition when it is remembered that the organisms are so minute that a cubic inch of material would form a quadruple line of them from London to New York."

My own experience and observation is in agreement with this last proposition, as witness the following paragraph from my report of last year (see *Report of U. S. Entomologist*, 1886, p. 587):

"That the contagion may sometimes be borne from hive to hive by the wind appears to be true, as it was observed in one of the apiaries which I treated for this disease during the past summer, that of a large number of diseased colonies in the apiary, with the exception of 2 colonies, all were located to the northeast of the colony in which the disease first appeared. The prevailing wind had been from the southwest."

Mr. Cheshire says further, page as above: "The bee-keeper is unfortunately almost compelled to become himself a probable cause of infection. His hands, made adhesive by propolis, carry the spores or bacilli, and so may transfer them, even hours later, to healthy hives. The clothes should be kept as far as practicable from contact with suffering colonies, and the hands after manipulating them should be disinfected by washing with a weak solution of mercuric chloride (corrosive sublimate), $\frac{1}{2}$ of an ounce in 1 gallon of water being quite strong enough."

The concluding paragraph under this heading in my report for 1886 is as follows:

"That the disease germs may be carried upon the clothing and hands appears probable, from the fact that in one neighborhood this disease appeared in only two apiaries, the owners of which had spent some time working among diseased colonies at some distance from home, while other apiarists in that locality who had kept away from the contagion had no trouble from foul brood."

It has been the common belief that honey is the medium through which the disease is most frequently introduced from both near at hand and remote sources of infection. That undue importance has been attached to honey as the common source of infection appears certain, for I have proved by repeated trials that if frames containing combs of capped honey, and having no cells containing pollen, be removed from infected hives and thoroughly sprayed or immersed, using an acid and alkaline solution of suitable strength to destroy the germs exposed to its action, the honey in such combs did not communicate disease when placed in healthy colonies and consumed by the bees as food for both summer and winter uses. I have found it altogether practicable to feed honey which had been extracted from the infested combs without boiling, always adding, however, as a precaution, a disinfectant suitable to destroy any infection possibly lurking in such food.

In speaking of honey as a means of carrying this contagion, Mr. Cheshire says: "I have searched most carefully in honey in contiguity with cells holding dead larvæ; have examined samples from stocks dying out with rottenness; inspected extracted honey from terribly diseased colonies, and yet in no instance have I found an active bacillus, and never have been able to be sure of discovering one in the spore condition, although it must be admitted that the problem has its microscopic difficulties, because the stains used to make the bacilli apparent attach themselves very strongly to all pollen grains and parts thereof, and somewhat interfere with examination. I have now discovered that it is impossible for bacilli to multiply in honey, because they cannot grow in any fluid having an acid reaction."

As to pollen being the medium by which this contagion is commonly introduced into the hive, not wishing to appear as speaking *ex cathedra*, I venture to say that further experiments in the line indicated in my report of last year, leave little room to doubt the accuracy of the opinion then formed, namely, that pollen is the medium by which this contagion is most commonly introduced, and most rapidly spread

and persistently perpetuated. Continued observation showed that in those colonies where the largest quantity of pollen was being gathered, the disease quickly assumed the malignant form, even when the quantity of brood was not greater than that being reared in other colonies where but little pollen was being gathered, and in which the disease was far less virulent; and in this latter kind, where little pollen was being gathered, the contagion yielded most readily to treatment. But what seemed more to the point was, that from those colonies from which the combs containing pollen were removed, and a suitable substitute furnished in the hive, thus avoiding the necessity for bringing supplies from the fields, the disorder was cured, and the colony speedily regained their normal condition.

The fact that queen larvæ seldom die from this contagion, taken in connection with what we know to be true concerning the character of their food, is significant, namely, that it is wholly composed of digested material, pollen grains being rarely found therein, and then as if present by accident and not by design, seems to justify the conclusion that the absence of pollen accounts for the absence of bacilli; while on the contrary the food of worker larvæ, secreted in excessive quantity and deposited in haste, occasional grains of pollen being dropped, and no reason for their removal existing, the bacilli finding congenial cultures, multiply apace; and if perchance the larvæ escape infection, as is commonly the case until near the time of weaning, then live pollen being supplied, speedy and complete ruin results. Moreover, few if any bacilli are to be found in the chyle stomach of an adult queen at the head of a stricken colony, subsisted, as she must be, almost entirely upon secreted food produced by the worker bees; while in the chyle stomach of the worker, which partakes freely of pollen, they are present in quantity, and in fact line the whole intestinal tract.

The evidence presented in support of this pollen theory of the means of introducing and spreading this contagion is circumstantial, still it is component; and if it fails to reveal the true source of infection, the fact that the consumption of such live pollen as is obtained from the fields during the prevalence of this disease, or such old pollen as is stored in cells in which it may have molded or rotted, and become a possible source of infection, aggravates the disease and makes it more persistent, and the fact that if the old pollen be removed from the hive, and artificial pollen be substituted, the malignant and persistent

characteristics disappear, and that the contagion then readily yields to suitable treatment, is settled beyond question.

While it is true that queen-bees have less to fear from infection in the larval stage, it is also true that queens reared in infested colonies are commonly worthless. Of 25 queens so reared in one apiary, and successfully established at the head of as many colonies, not one survived the period of hibernation. In case the contagion does not assume the acute form in the larvæ it may localize and become chronic, and so, the bacillus of disease being as unnatural as disease itself, both worker and queen may live on for weeks and months, and the queen, with both life and death within her, transmitting the possibilities of both. Mr. Cheshire has counted as many as nine bacilli in a single egg, a discovery full of significance when striving to account for the spread of the disease. It is but natural that this contagion, being a disease of the blood, should find congenial and luxuriant feeding-ground among the most delicate and highly organized glands and tubes of the ovaries.

We reason thus: The bee-pap furnished to the queen larva, the protoplasmic egg-food, copiously furnished to the queen during the breeding season, is continuous, and passes from cell to cell. The germ cell of bacillus contributed to the organism of the queen in larval or in egg-food, borne along through the digestive and circulatory system, passes within the ovarian tubes and from thence into the nascent egg-cell, and once within the yolk is ready to contend for supremacy against the spermatozoid soon to be introduced. But the strife is unequal, and instead of the differentiating principle determining the form, function, and instinct of a new creature appointed to long life and service, the bacillus, finding the environment suited to multiplication, sterilizes the blood and riddles the tissues and viscera.

The remedy which I have found to be a specific—by the use of which I have cured hundreds of cases, many of which seemed hopelessly incurable, without failure, and without a return of the contagion, except in the case of two colonies of black bees, where the disease reappeared in a form so mild that each colony was speedily cured, each one casting a swarm, and storing a fair amount of surplus honey—is prepared and applied substantially as directed in my last annual report.

In 3 pints of warm soft water dissolve 1 pint of dairy salt. Add 1 pint of water, boiling hot, in which has been dissolved 4 table-spoonsful of

bicarbonate of soda. Dissolve $\frac{1}{2}$ of an ounce of pure salicylic acid (the crystal) in 1 ounce of alcohol. Add this to the salt and soda mixture, then raise the temperature near to the boiling point, and stir thoroughly while adding honey or syrup sufficient to make the mixture quite sweet, but not enough to perceptibly thicken, and leave standing for two or three hours, when it is ready for use. An earthen vessel is best. I have tried other acids and alkalies in other forms, but the remedy prepared as directed and applied warm is that which I prefer.

Treatment of *Bacillus Alvei*.

Upon removing the cover from the hive, thoroughly dampen the tops of the frames, and as many bees as are exposed by blowing a copious spray of the mixture from a large atomizer. Beginning with the outside, lift a frame from the hive and throw a copious spray over the adhering bees on both sides of the comb, shake off part of the bees into the hive, and spray those remaining; then shake and brush these into the hive; then blow a copious spray of the warm mixture over and into the cells on both sides of the combs sufficient to perceptibly dampen both comb and frame. In like manner treat all the frames, serially, returning them to the hive in order. From combs containing very much pollen, the honey should be extracted and the combs melted into wax. This extracted honey may be fed with safety, $2\frac{1}{2}$ ounces of the remedy being added and well stirred into each quart of water.

All the colonies in the apiary should be given a thorough spraying the first time the treatment is applied, but combs containing pollen need not be removed from healthy colonies. After the first thorough treatment the combs and bees should be thoroughly sprayed with the remedy at intervals of two or three days until cured. Three treatments after the first thorough application are commonly sufficient; first one frame being lifted from the hive and sprayed, and the others simply set apart, so that the spray may be well directed over and copiously applied to both bees and combs. An essential feature in my method of treatment, which I failed to make duly significant and prominent in my last annual report, is that medicated honey or sugar syrup should be continuously fed to all infected colonies while they are convalescing, for not only must the contagion be driven from the organism of the adult bee, and suitable food and tonic given to aid in repairing the ravages of disease, but a constant and even supply of the remedy serves as a preventive and cure for the diseased larvae.

The honey or syrup should be fed warm, and 2 ounces of the remedy should be well mixed in each quart of food, which may be given in feeders, or by pouring over and into empty combs, and placing these in the hive.

To prevent the bees from going abroad for supplies, make a thin paste of rye flour and bone flour, three parts of the former to one of the latter, adding the medicated honey or syrup. Spread this over a small area of old comb and honey in the hive, or feed in shallow pans or wooden butter dishes in the top of the hive or outside in the apiary, under shelter from rain. I prepare the bone flour by burning dry bones to a white ash. The softest and whitest pieces I grind to dust in a mortar, and sift through a very fine sieve made of fine wire-strainer cloth. The coarser pieces of burned bone I put in open vessels with lumps of rock salt, which I keep half covered with sweetened water, and sheltered from the rain, at all times accessible to the bees. The rapidity with which depleted colonies recuperate and become populous is surprising. I have tried supplying the saline, alkaline, and phosphate elements in bee-food by using boracic acid, phosphoric acid, etc., but I find that the bees take kindly to the supplies prepared as I have directed, and the amount consumed shows their appreciation and need. Such supplies of food and drink should be kept at all times in the apiary, easy of access. I have not found disinfecting of the hives necessary further than to simply dampen the inside with a copious spray of the remedy, and sometimes no care was taken to do even this.

BEE-HIVES.

The New Heddon Hive Considered and Criticised.

Written for the American Bee Journal
BY DR. G. L. TINKER.

In the controversy with Mr. Heddon I have had no ill-will towards him, nor cause for it. My course has been prompted wholly by a desire to forewarn the public against a recognized wrong. Mr. Heddon charges that I have done him an "injury." In reply, I will say, that it is better that he should suffer injury than that the bee-keepers of America should do so by the introduction of such a hive.

Mr. Heddon devoted a chapter in his book, "Success in Bee-Culture," to the claims for his new hive, alleging that he had used it two years, and that it had been fully tested by himself and "students."

The "new principles" set forth were new indeed, and would no doubt have caused a revolution in bee-culture had they proved in practice what they were represented to be. But they did not so prove, and it now remains to be seen if they were not wholly theoretical from the beginning. They were captivating and plausible, and bee-keepers generally accepted them as established facts on Mr. Heddon's statements.

The feature above all others, that was heralded in advance of the issue of his book, was the alleged fact that we could "handle hives" if rightly constructed, instead of many frames in all needful work in an apiary. It was confessed at the outset that it would cost about twice as much as other hives, but the advantages were such that the extra cost was a small item in summing up results, for "success in bee-culture" was over assured to every bee-keeper!

Many bought rights, and many more bought hives with genuine Yankee enthusiasm. Mr. Heddon says over 500 got the hives. At last it appeared that the hive was not what it had been represented to be, that it was in fact a fraud. Then reports were called for, but only 58 bee-keepers out of the 500 made favorable reports. Over 400 were silent as a tomb! Had the hive been the great success it had been represented to be, can any one believe for a moment that all these men would have remained silent?

The hive must stand or fall on the claims that have been made for it. First, Mr. Heddon's new super is not a success. If it was, we would find that all who use his divisible brood-chamber also using his new super. But all do not. A large number of bee-keepers use and prefer Mr. Heddon's old super on his new hive. That "settles the merits" of the new super.

There remains only his divisible brood-chamber to be considered, and every bee-keeper must now see that it is a failure, if it cannot be handled as represented; for if it cannot be, why handle 16 brood-frames when 8 can be handled just as quickly, and answer the same purpose; why be to the extra cost? It was claimed to be an easy task to shake out the bees and queens from the cases, discover queen-cells, etc. But the bees and queens cannot be shaken out as represented. It can neither be done readily nor easily, and if it could be, we are often unable to see all the queen-cells, as I have found in many instances. As well try to shake the bees out of a case of sections. It can be done, but it is a laborious undertaking.

One of the 58 men who reported favorably on the hive, who lives not

far from here, and obtained his hives direct from Mr. Heddon, recently made a thorough test of the "shake out function" of the hive. Aided by another expert bee-keeper who had charge of the hives the attempt was made to shake out the bees and queens from several hives without success. The attempt was also made to drive the queens down on the bottom-board with smoke with no better success. One colony of hybrids were so enraged by the shaking, that the apiarists were driven out of the apiary. At last, our friend, unable to find a queen, or to shake out the bees, gave up the experiment in disgust, and declared that the would transfer the bees to other hives.

The experience of these gentlemen is the same as my own, that the "shake out function" is a humbug. Add to this the difficulty from brace-combs, and the divisible brood-chamber has not a thing to recommend it. It becomes at once a complicated, expensive and worthless contrivance.

But Mr. Heddon claims that I have not used his hive, but instead a modified one, and not a divisible brood-chamber at all. Let us see about that. The idea was given out by Mr. Heddon that there was no need of handling brood-frames, but instead, hives. I would make the most of this valuable (?) function of the new hive. So I made it the exact capacity of the eight-frame Langstroth hive. The cases were made very light, of $\frac{3}{4}$ -inch stuff, and the frames $\frac{1}{2}$ an inch more shallow than Mr. Heddon's. Besides, to make sure of the "shake out function" the top and bottom bars were made only $\frac{1}{4}$ of an inch wide. These cases were illustrated in *Gleanings*. But after all my care in the matter, and numerous trials, I found the "shake out function" to be impracticable to a man of ordinary strength and endurance, even with my little cases.

Mr. Heddon is fond of alluding to what he is pleased to call my "mistakes." But my mistakes, if I have made any, are trivial indeed as compared with the grand mistakes of Mr. Heddon in his unfortunate hive theories. It is human to err, but I must object to one of the most signal failures in the history of apiculture being paraded before the public under the false guise of "success." Charging me with mistakes will not blind the public to the fact that the principle of his new hive is wrong, and that his theories regarding it are highly deceptive and misleading.

In conclusion I must observe, that Mr. Heddon has made no improvements in bee-hives as alleged; at least not in the so-called new hive. The

Heddon-Langstroth hive with the Heddon-More super have met with favor, but as an "original inventor" we shall hope that our friend may yet distinguish himself.

New Philadelphia, Ohio.

[It is difficult to find the right place to stop a discussion when once begun. We thought we had terminated the controversy about the merits of the Heddon hive some months ago, but some persons imagined that an injustice was done to Dr. Tinker in stopping it there, and we now admit the above just to show that no injustice was intended. As the essay of Dr. Tinker's opened the "ball," if Mr. Heddon desires to make a short reply, that will positively close the discussion in our columns. We hope this will satisfy all the friends of both parties. While many are tired of the discussion and desire to see it terminated, we will not give either side the advantage.—Ed.]

WINGS CLIPPED.

Thoughtlessly Clipping Wings of a Virgin Queen.

Written for the American Bee Journal
BY JOHN CADWALLADER.

On June 14 a swarm was cast by a colony having a queen with her wings clipped, which was properly hived. To my knowledge none has issued from that hive, until to-day one came forth. While they were issuing I discovered the queen in the grass in front of the hive. I captured her, and before reflecting I clipped her wings. 1. Is it likely that she is a virgin queen? 2. As she cannot take wing, will she ever become fertile?

On May 27, I was examining a colony which I had known to be strong, and finding no eggs, but an abundance of brood and numerous queen-cells, I concluded that the colony had suddenly become queenless. So on the following morning I began to cut out a lot of the queen-cells which were chiefly in one frame. As fast as the cells were taken they were placed in a wooden butter-dish. When I had finished, the comb had been so weakened by the removal of the queen-cells, that it broke loose from the frame. I at once began to repair this, but before I had finished it, the queen-cells in the butter-dish began to hatch, and the queens to crawl away. I hurriedly caught and caged six, but two got away; one I afterward found dead un-

der the hive with a lot of bees around her, trying to bring her to life.

I then fixed some nuclei in which to place this flock of queens, which were threatening to cut their way out of the cages. The hive had been smoked and all broken up for an hour. It was about 11 o'clock. I had in the meantime hived a first swarm which had issued with a wing-clipped queen, when the swarming note was again heard by a swarm issuing from this hive which had been smoked and broken up for an hour, which had yielded me six bright queens, and the two which "got away." This swarm was hived, and both it and the parent colony have had laying queens for several weeks. I therefore concluded that the parent colony had become queenless by having cast a swarm (the queen's wing not being clipped) unknown to me, which absconded.

There seems to be little prospect for white clover. Basswood is in bloom, alive with bees, but honey is not coming in as it did from fruit-bloom, poplar, and probably honey-dew. So far all the honey stored is of a dark color and bitter taste.

North Vernon, Ind., June 30, 1888.

[It is very likely that the queen you found in the grass was a virgin, and if so, in clipping her wings you destroyed her usefulness by preventing her from flying and becoming fertilized.—Ed.]

CONVENTION DIRECTORY.

1888.	Time and Place of Meeting.
Aug. 3.—	Ionia County, at Ionia, Mich. H. Smith, Sec., Ionia, Mich.
Aug. 14.—	Colorado State, at Denver, Colo. J. M. Clark, Sec., Denver, Colo.
Aug. 27.—	Stark County, at Canton, O. Mark Thomson, Sec., Canton, O.
Sept. 8.—	Susquehanna County, at Montrose, Pa. H. M. Seeley, Sec., Harford, Pa.
Dec. —.	Michigan State, at Jackson, Mich. H. D. Cutting, Sec., Clinton, Mich.

In order to have this table complete, Secretaries are requested to forward full particulars of time and place of future meetings.—Ed.

SELECTIONS FROM OUR LETTER BOX

No White Clover Honey.—Geo. W. Fair, Chrisman, Ills., on July 9, 1888, says:

I wintered 32 out of 34 colonies of bees, coming through in splendid condition, and are now boiling over with bees; but they have not gathered a pound of surplus honey, and there is no prospect of any soon. This is a good locality for white clover honey, but it is a complete failure this year. What is in bloom seems to afford little if any honey.

Measuring Comb Surface.—J. H. Weidman, Riverside, N. J., on July 6, 1888, writes:

In answer to the editor's remarks on page 419, I would state that I discovered the grievous error soon after I had sent the article in question, but not in time to prevent its appearance in print. But I was in the wrong only in calculating the number of cells to the square inch of comb surface, for the fact remains that a square inch of comb (which means a square inch of comb surface, as square measure is surface measure, and cannot be anything else), contains 27 cells, and that a frame $10\frac{1}{2} \times 10\frac{1}{2}$ will contain 230 square inches of comb, or of comb surface; and by taking 27 cells to the square inch, we get the true capacity of the frame, 6,210 cells. Now I claim that this is the only proper method of calculating the capacity of comb in a hive, and my remarks in my previous article apply to this matter, with the exception of the error already noticed.

[The error of Mr. Weidman has been corrected several times by others, and now by himself. This will dispose of the matter at present. The error was very apparent at first sight.—Ed.]

Supporting a Good Cause.—T. H. Kloer, Terre Haute, Ind., on July 9, 1888, writes:

My bees have not produced one ounce of honey, and have not a day's supply in the hives now. They are weak, having lost half the old bees and all the brood by starvation between June 10 and June 20. There was no white clover, and linden furnished only a living. Although I am heavily involved, and in great financial distress, I enclose \$1.00 as my annual dues to the Bee-Keepers' Union, so as to hold up the good cause.

Pleurisy-Root and Buckwheat Honey.—Jacob N. Becker, Oakfield Centre, Mich., on July 8, 1888, says:

Bees are not doing much in this locality. White clover was plentiful, and is gone, but there was no honey in it. The bees just gathered enough to keep up brood-rearing. I have 120 colonies, and they are over-running with bees, but not one swarm has issued. They are gathering some honey from pleurisy-root and milk-weed at present. Basswood is budded for bloom, and there are 100 acres of buckwheat sowed within bee-range of my apiary. I shall look for some honey from that source.

Managing Swarms, etc.—T. M. Herrick, Woodstock, N. Y., on June 30, 1888, writes:

The last winter was the hardest here that we have had in many years, fully 20 per cent. of all the bees having died, and the spring was backward and cold. I put 32 colonies into the cellar, and left 25 on the summer stands. I lost in all 17 colonies; but things are booming now. Honey from clover and vervain is coming in as fast as I ever saw it. I have had 23 swarms, and all is going well.

I handle swarms in the following manner: First, it is best to get 8 frames of brood in the colony, or as near it as possible before swarming, then when the swarm issues, I take out two-thirds of the brood, and all the bees that are on the frames, and put into another hive, taking all the queen-cells; or, if there are cells on all the frames,

I take the best and destroy the others. Now if there is number of them, I cut them all out but one (leaving the best one), and put them in a cell-hatcher, inserted in one of the colonies that has cast a swarm. As Italians are apt to swarm without matured queen-cells, I am always ready with matured cells or virgin queens to give the old colony as soon as they have cast a swarm.

The way I put cells into the hive is as follows: With my finger I scratch the comb down to the division wall, a spot a little larger than the cell, and stick a pin through the fringe of comb at the top of the cell, and through the comb in the frame, so that the cell hangs into the place I have scratched out; they will soon fasten it so that the pin may be removed, and leave the cell fast. I leave four frames with the swarms that I work for comb honey, using starters 2 inches wide, if they have not frames enough of brood to leave 4, after taking away $\frac{1}{2}$. I use a frame $10\frac{1}{2} \times 17\frac{1}{2}$ inches.

Overstocking a Locality.—G. A. Adams, Perrysburgh, O., on July 10, 1888, writes:

A few of us began keeping bees here in 1885, but there were not many colonies kept. When we began, Mr. Puhl, of Momence, was the only extensive bee-keeper in the vicinity. Since then, a Toledo man has planted an apiary within 10 rods of my farm, and last year his 200 colonies took all of my fall pasturage. They have taken all my raspberry honey this spring. My bees have no chance against such numbers. This spring 40 colonies of this apiary were taken one mile south of mine. The other is $1\frac{1}{2}$ miles east. I live in the town, and the bee-keepers are thus surrounded by the apiaries of this man, who does not own a foot of land in the county. He will kill bee-keeping in this neighborhood. I can get along with ignorance by teaching, but how am I to fight greed? Can the Bee-Keepers' Union devise any method? We small bee-keepers in Perrysburgh would be rejoiced if a remedy could be provided.

[That is a hard matter to adjust. Dr. C. C. Miller is the man to grapple with questions of territorial right to the nectar in the flowers; and he may have something to suggest on the matter. We should think, however, that the intruder would see that he was overstocking the locality even for his own bees, and remove the bees further away. For one thing is certain, if your bees can get nothing, his are in the same condition, for if the nectar was there they would all get a share of it.—Ed.]

Strong Colonies and Drowned Bees.—Chas. H. Wiele, Stoddard, Wis., on July 5, 1888, writes:

This has been the hardest spring on bees here, that I have witnessed in the last 27 years. I put them out of the cellar on April 12, with the loss of but one colony out of 80. Two swarmed out the same day, it being pretty warm. They almost immediately began to work and carry pollen, and were strong and lively, but it did not last very long; wet and chilly weather set in, and then it could not be called "spring dwindling" any more, but "spring killing." They would fly over on the islands of the Mississippi, and the water being high, they would drop right into it in returning, and drown by the thousands. A person could just dip them up by the handfuls along the bank. Of course the colonies became so weakened that I expected to lose the most of them; I had to double up 26, and the rest pulled through well enough. It was well

that we had good, warm weather during plum and apple blooming (of which trees I have several hundred), and so the bees became strong again, and are all in good condition now.

Clover did not yield much honey, or rather none, and linden will commence to bloom in a few days; if no honey comes in then, there will be poor prospects for honey in this neighborhood, because the islands are still covered with water, and the fall flowers will have little chance to grow and to bloom before frost. I had about 3,000 pounds of comb honey last year, and I shall be satisfied if I get half that amount this year. Still we cannot tell, and have to hope for the best.

Fine Harvest Expected—Hiving Swarms.—E. T. Smith, Bowling Green, Mo., on July 9, 1888, writes:

White clover has bloomed but little here, but the fields are now covered with young clover, just beginning to bloom, and I am expecting a fine honey harvest. My colonies are building up, and are beginning to be very strong, the honey-flow being sufficient to encourage increase, but not sufficient for surplus. I started in the spring with 8 colonies, and I now have 16. In hiving swarms I adopted the Heddon method in part, to prevent increase; that is, I move the old stand and put the new one in its place. The result has been, that I have had only one swarm from each of those colonies. I allowed one old colony to remain, and hived the swarm in a new place, and that colony swarmed three times. In hiving my swarms, I went contrary to Mr. Hutchinson's advice, given in his little book—that is, I hived them on combs, left from the previous year, and I have never seen colonies build up faster. I am satisfied that Mr. Hutchinson is right, and the result would have been as he says, if the honey-flow had been good, but with such a season as this has been, I think that the empty combs are a great help. Our season is excellent, and crops of all kinds are very fine.

Alsike Clover on Dry Land.—Eugene Secor, Forest City, Iowa, on July 4, 1888, writes:

I have sowed Alsike clover seed a couple of times within the last ten years. On dry land I fear this is not going to prove a very profitable crop for either hay or pasture. It does not stick like common white clover, and does not grow large enough to take the place of red clover. But a couple of my neighbors sowed Alsike on wet land a year ago in early spring; the land was such as produces only wire grass. Open ditches had been cut the year previous, taking off all the standing water. On this kind of land they tell me it is a success—standing up in the wild grass 15 to 20 inches high, and growing luxuriantly.

Working on the Linden, etc.—S. Burton, Eureka, Ills., on July 5, 1888, writes:

I notice on page 444, Mrs. J. B. Curlee says that the Chapman honey plant will be in bloom in a few days; that it is 4 feet high, and has large balls on it, looking like the wild thistle. It is not like mine. My plants are from 5 to 7 feet high, with balls on them, and has no resemblance to the wild thistle. There are from 30 to 50 balls on a stalk. It began to bloom on July 1. The bees are busy on it all the time. I have had 14 swarms up to this date. The linden is in bloom now, and the bees have had a lively time for the last two days. The white clover is not coming on as fast as I expected it would, but we had a good rain last night which will help it out now.



ALFRED H. NEWMAN,
BUSINESS MANAGER.

Business Notices.

If You Live near one post-office and get your mail at another, be sure to give the address that we have on our list.

Hilton's new pamphlet on Comb Honey Production has been reduced in price to 5 cents. For sale at this office.

If you Lose Money by carelessly enclosing it in a letter, it is without excuse, when a Money Order, which is perfectly safe, costs but 5 cents.

Paper Boxes—to hold a section of honey for retail dealers. We have two sizes on hand to carry sections $4\frac{1}{2} \times 4\frac{1}{2}$ and $5\frac{1}{2} \times 5\frac{1}{2}$. Price, \$1.00 per 100, or \$8.50 per 1,000.

Preserve Your Papers for future reference. If you have no BINDER we will mail you one for 60 cents; or you can have one FREE, if you will send us 3 new yearly subscriptions for the BEE JOURNAL.

Yucca Brushes, for removing bees from the combs, are a soft, vegetable fiber, and do not irritate the bees. We supply them at 5 cents each, or 50 cents a dozen; if sent by mail, add 1 cent each for postage.

Please write American Bee Journal on the envelope when writing to this office. Several of our letters have already gone to another firm (a commission house), causing vexatious delay and trouble.

Home Markets for honey can be made by judiciously distributing the pamphlets, "Honey as Food and Medicine." Such will create a demand in any locality at remunerative prices. See list on the second page of this paper.

Apiary Register.—All who intend to be systematic in their work in the apiary, should get a copy of the Apiary Register and begin to use it. The prices are as follows:

For 50 colonies (120 pages).....\$1 00
" 100 colonies (220 pages).....1 25
" 200 colonies (420 pages).....1 50

Photographs of Bee-Keepers.—The "medley" gotten up by E. O. Tuttle, containing the faces of 131 representative apiarists, and a printed sketch of each one, will be sent with the BEE JOURNAL for one year for \$1.75; or we will present it free, by mail, to any one, for a club of three subscribers and \$3.00.

CLUBBING LIST.

We Club the American Bee Journal for a year, with any of the following papers or books, at the prices quoted in the LAST column. The regular price of both is given in the first column. One year's subscription for the American Bee Journal must be sent with each order for another paper or book:

	Price of both.	Club
The American Bee Journal.....	1 00	...
and Gleanings in Bee-Culture.....	2 00	1 75
Bee-Keepers' Magazine.....	1 50	1 40
Bee-Keepers' Guide.....	1 50	1 40
Bee-Keepers' Review.....	1 50	1 40
The Apiculturist.....	1 75	1 60
Canadian Bee Journal.....	2 00	1 80
Canadian Honey Producer.....	1 40	1 30
The 8 above-named papers.....	5 65	5 00
and Cook's Manual.....	3 25	2 00
Bees and Honey (Newman).....	2 00	1 75
Binder for Am. Bee Journal.....	1 00	1 50
Dzierzon's Bee-Book (cloth).....	3 00	2 00
Root's A B C of Bee-Culture.....	2 25	2 10
Farmer's Account Book.....	4 00	2 20
Western World Guide.....	1 50	1 30
Heddon's book, "Success".....	1 50	1 40
A Year Among the Bees.....	1 75	1 50
Convention Hand-Book.....	1 50	1 30
Weekly Inter-Ocean.....	2 00	1 75
Iowa Homestead.....	2 00	1 90
How to Propagate Fruit.....	1 50	1 25
History of National Society.....	1 50	1 25

Cork for Winter Packing.—Its advantages are that it never becomes musty, and it is odorless. Cushions can be made of cloth and filled with the cork, for winter packing. We can supply all orders now at 10 cents per pound. Or a seamless sack of it, containing 15 pounds, for \$1.00.

Red Labels for Pails.—We have three sizes of these Labels ranging in size for pails to hold from one to ten pounds of honey. Price, \$1 for a hundred, with the name and address of the bee-keeper printed on them. Smaller quantities at one cent each; but we cannot print the name and address on less than 100. Larger quantities according to size, as follows:

	Size A.	Size B.	Size C.
250 Labels.....	\$1.50	\$2.00	\$2.25
500 Labels.....	2 00	3 00	3 50
1,000 Labels.....	3 00	4 00	5 00

Samples mailed free, upon application.

A Modern BEE-FARM, and its Economic Management; showing how bees may be cultivated as a means of livelihood; as a health-giving pursuit; and as a source of recreation to the busy man. By S. Simmins. For sale at this office. Price, \$1.

We Supply Chapman Honey-Plant SEED at the following prices: One ounce, 40 cents; 4 ounces, \$1; $\frac{1}{2}$ pound, \$1.75; 1 pound, \$3. One pound of seed is sufficient for half an acre, if properly thinned out and re-set.

Alfalfa Clover.—For habits and cultivation of this honey-plant, see page 245. We supply the seed at the following prices: —Per lb., 22c.; per peck, \$3.00; per half-bushel, \$5.50; per bushel of 60 lb., \$10.00. If wanted by mail, add 18 cents per pound for bag and postage.

Honey and Beeswax Market.

NEW YORK.

HONEY.—We quote: Fancy white in 1-lb. sections, 12@15c.; the same in 2-lbs., 10@11c.; buckwheat 1-lb., 10c.; 2-lbs., 9c. Market dull. We are doing all we can to reduce stock, to make room for the new crop.

BEESWAX.—23c.
May 21. HILDRETH BROS.,
28 & 30 W. Broadway, near Duane St.

SAN FRANCISCO.

HONEY.—We quote: White to extra white comb, 12@15c.; amber, 8@11c. Extracted, white to extra white, 5@6c.; amber, 4@5c. Arrivals of the new crop are small, the estimates being an average crop.

BEESWAX.—23@24c.
June 18. O. B. SMITH & CO., 423 Front St.

DETROIT.

HONEY.—Best white in 1-lb. sections, 14c.—Dull.
BEESWAX.—23@24c.
June 14. M. H. HUNT, Bell Branch, Mich.

CHICAGO.

HONEY.—We get 15c. per lb. in a small way for best comb, and less for off grade. Extracted, best white, 7@8c. None of the new crop received yet, but there is more than sufficient of the old crop for the light demand.

BEESWAX.—22c.
Jan. 30. R. A. BURNETT,
161 South Water St.

NEW YORK.

HONEY.—We quote: Fancy white 1-lb. sections, 12c.; fancy 2-lbs., 10@11c.; fair white 1-lb., 10@11c., and fair 2-lbs., 8@9c. Buckwheat 1-lb., 7@8c. The demand is dull for comb but fair for extracted, of which new from the South is arriving, and sells for 5@6c. per gallon.

BEESWAX.—Dull at 23@24c.
Jun. 15. F. G. STROHMAYER & CO., 122 Water St.

CHICAGO.

HONEY.—No white clover left in this market. Dark slow sale at 8@10c. Extracted ready sale on arrival. New crop will meet with good demand.

BEESWAX.—23c.
July 2. S. T. FISH & CO., 189 S. Water St.

CINCINNATI.

HONEY.—We quote extracted at 5@8c. per lb., for which demand is fair. Comb honey, 12@15c.—Demand slow.

BEESWAX.—Demand is good—20@22c. per lb. for good to choice yellow, on arrival.
July 11. C. F. MUTH & SON, Freeman & Central Av.

MILWAUKEE.

HONEY.—Choice white one-lb. sections, 14@16c.; 2-lbs., 13@14c.; 3-lbs., 12@13c. Extracted, white in kegs and barrels, 8@9c.; in tin and pails, 9@10c.; dark in barrels and kegs, 6@8c. Demand good for extracted, but dull for comb.

BEESWAX.—22@25c.
July 2. A. V. BISHOP, 142 W. Water St.

DENVER.

HONEY.—Best white 1-lb. sections, 14@15c.; 2-lb. sections, 12c. Extracted, 6@7c.

BEESWAX.—23@30c.
Jun. 25. J. M. CLARK & CO., 1409 Fifteenth St.

KANSAS CITY.

HONEY.—We quote: Choice new 1-lb. sections in good demand at 15@16c., not glassed; dark ones not searched; 2-lbs. and extracted there is no demand for. Stock of old honey is light, and the sections are all glassed, which style the trade do not like.

BEESWAX.—None in market.
Jun. 30. HAMBLIN & BEARSS, 514 Walnut St.

BOSTON.

HONEY.—We quote: 1-lb. sections, 14@16c.; 2-lb. sections, 12@13c. New Florida extracted, 8@9c. Sales are very dull.

BEESWAX.—25 cts. per lb.
July 5. BLAKE & RIPLEY, 57 Chatham Street.

SAN FRANCISCO.

HONEY.—We quote: Choice new extracted, 5 to 5½c.; amber to light amber, 4½@4¾c. Choice comb in 1-lb. sections, 13@14c.; 2-lbs., 12@13c. Arrivals are small, as apiarists are holding back. Prices are considered high.

BEESWAX.—18@22c.
Jun. 25. SCHACHT & LEMCKE, 122-124 Davis St.

KANSAS CITY.

HONEY.—We quote: White 1-lb., unglazed, 15c.; 1-lb., white, glazed, 14c.; dark, 1-lb., 2c. less. California, 2-lbs., comb, white, 15c. Extracted, 7c. Considerable old honey is in this market. No new yet in. Sales are very slow.

BEESWAX.—None on the market.
June 8. CLEMONS, CLOON & CO., cor 4th & Walnut.

ST. LOUIS.

HONEY.—We quote: Extracted, bright, 5@5½c.; dark, 4½@5c.; in cans, 7@8c. Comb, choice white clover, in prime order, 13@15c.; dark, less. Market quiet with fair demand for extracted.

BEESWAX.—22c. for prime.
Jun. 27. D. G. TUTT & CO., Commercial St.

Frank Leslie's Sunday Magazine for August continues Geo. Macdonald's fine story "The Elect Lady," and begins a new story, the scene laid in Old France, entitled, "Genevieve or The Children of Port Royal." There is also a short story by Amanda M. Douglas, entitled "Miss Brooke's Adventure." An illustrated article, "Glimpses of Mission Life Among the Maories," tells of early missionary struggles in New Zealand. "Pen and Pencil Sketches of Shadeland," depicts a charming spot in our own country, and an elaborately illustrated article on "La Fontaine's Fables" tells us much about the French fabulist and his work. There are many interesting short articles and beautiful illustrations. It concludes with a fine hymn tune, "We Give Immortal Praise," by Frank L. Sealy, of Newark, N. J.

The Convention.—The pamphlet containing the report of the proceedings of the Union Convention in Chicago, is now published, and can be obtained at this office for 25 cents. Or bound up with the history of the International Society, and a full report of the Detroit and Indianapolis conventions, for 50 cents, postpaid.

Clover Seeds.—We are selling *Alsike Clover Seed* at the following prices: \$3.00 per bushel; \$2.25 per peck; 25 cents per lb. *White Clover Seed*: \$10.00 per bushel; \$3.75 per peck; 30 cents per lb. *Sweet, or Melilot, Clover Seed*: \$6.00 per bushel; \$1.75 per peck; 20 cents per lb.—by express or freight.

Always Mention your Post-Office, County and State when writing to this office. No matter where you may happen to be for the hour when actually writing—never mention anything but your permanent address. To do otherwise leads to confusion, unless you desire your address changed. In that case state the old as well as the new address.

Advertisements.

FOR SALE—600 Colonies in the movable-comb hives, at \$4.00 for Italians, and \$3.00 for Hybrids.
25A13T **G. H. ADAMS**, Troy, N. Y.

Mention the American Bee Journal.

HOW TO RAISE COMB HONEY,

PAMPHLET full of new and improved methods; Price, 5 one-cent stamps. You need also my list of Italian *Queens*, Bees by the lb., and Supplies. **OLIVER FOSTER**, 13A14T Mt. Vernon, Linn Co., Iowa.

Mention the American Bee Journal.

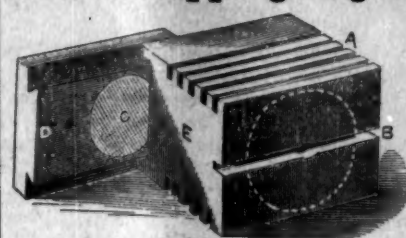
NEW ONE-POUND HONEY PAIL.



THIS new size of our Tapering Honey Pails is of uniform design with the other sizes, having the top edge turned over, and has a bail or handle,—making it very convenient to carry. It is well-made and, when filled with honey, makes a novel and attractive small package, that can be sold for 25 cents or less. Many consumers will buy it in order to give the children a handsome toy pail. Price, 75 cents per dozen, or \$5.00 per 100.

THOS. G. NEWMAN & SON, 923 & 925 W. Madison-St., CHICAGO, ILLS.
Mention the American Bee Journal.

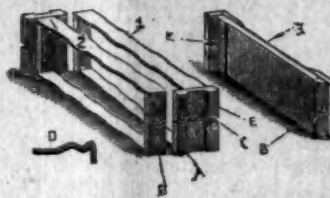
Queen Shipping-Cages.



WE have a lot of Queen-Cages, like the one illustrated, not provisioned, which we will sell 3 for a dime, by mail, postpaid.

THOS. G. NEWMAN & SON, 923 & 925 West Madison-Street, - CHICAGO, ILLS.

COBB'S Divisible, Interchangeable, Reversible HONEY-CASE.



(Patented Dec. 20, 1887.)

FOR descriptive circular and price-list, Address, **THOS. M. COBB**, Patentee, 29A11 Box 194, GRAND RAPIDS, MICH.
Mention the American Bee Journal.

VICTOR



SAFE.

DESIGNED for the Farmer, Lawyer, Doctor, Postmaster, Merchant, Township and County Officer, the Bee-Keeper, the Home—in fact every one should have a secure place for valuables.

We offer in the **VICTOR SAFE** a first-class Fire-proof, Burglar-proof, Combination Lock Safe, handsomely finished. Round corners, hand decorated; burnished portions are nickel-plated. Interiors nicely fitted with sub-treasuries, book-spaces and pigeon-holes.

Prices range as follows:

	OUTSIDE.	INSIDE.	WEIGHT.	PRICE
No. 2.	22x15x16,	12x8x8½,	250 lbs.	\$30 00
No. 3.	28x18x18,	15x10x10,	600 "	40 00
No. 4.	32x22x22,	19x14x12½,	800 "	60 00

THOS. G. NEWMAN & SON, 923 & 925 W. Madison-St., CHICAGO, ILLS.

BEE-KEEPERS' SUPPLIES.

HIVES, Sections, Foundation, Smokers, Frames, Crates, &c., furnished at greatly reduced rates. Also **ITALIAN BEES** and **QUEENS** at very low prices. Send for my Catalogue. Address,

A. F. STAUFFER, 29C14T STERLING, ILLINOIS.
Mention the American Bee Journal.

FEEDING - BACK.

THERE was probably never before gathered together so much reliable information upon the above subject as is to be found in

THE BEE-KEEPER'S REVIEW

for July. If you have, or expect to have, unfinished sections, read this Number. If you have failed to make a success of "feeding-back," its perusal may show you where you made your mistake. The August issue will be a "Fair Number."

Price of the REVIEW, 50 cents a year. Samples free. Back Numbers can be furnished.

The Production of Comb Honey,

A neat little Book of 45 pages, price 25 cents. The REVIEW and this book for 65 cents. Stamps taken, either U. S. or Canadian.

Address, **W. Z. HUTCHINSON**, 29D14T 613 Wood St., FLINT, MICHIGAN.
Mention the American Bee Journal.

GLASS PAILS FOR HONEY.



THESE Pails are made of the best quality of clear flint glass, with a bail and a metal top and cover. When filled with honey, the attractive appearance of these pails cannot be equaled by any other style of package. They can be used for household purposes by consumers, after the honey is removed, or they can be returned to and re-filled by the apiarist.

Prices are as follows:

To hold 1 pound of honey, per dozen,.....	\$1.60
" 2 pounds " " " " " " " " " " " "	2.00
" 3 " " " " " " " " " " " "	2.50

THOS. G. NEWMAN & SON, 923 & 925 W. Madison-St., CHICAGO, ILLS.

LOOK HERE!

FOR Sale Cheap—Bee-Hives, Shipping-Crates and brood-Frames; Comb Foundation, Planer-Sawed V-Grooved Sections a specialty. Price-List free. **J. M. KINZLE & CO.**, 13A14T Rochester, Oakland Co., Mich.
Mention the American Bee Journal.

HEDDON HIVES FOR SALE.

I HAVE a hundred, all complete—just finished. Purchaser given right to use them, by Mr. Heddon. Will sell at \$3.00 each, in lots of 10 or more. Inquire of,

27A14T **E. D. KEENEY**, Arcade, N. Y.
Mention the American Bee Journal.

HANDSOME ONE - PIECE SECTIONS.

WE have a limited quantity of One-Pound Sections, 4½x4½, a trifle less than two inches wide, with narrow tops, in packages of 1,000 each. They are manufactured from extra white lumber planed on both sides, making them the finest and most attractive honey-section in the world. Price, \$4.00 per package.

THOS. G. NEWMAN & SON, 923 & 925 West Madison-Street, - CHICAGO, ILLS.
Mention the American Bee Journal.

ITALIAN QUEENS—Untested, 75c. each; 6 for \$4.00; 12 for \$7.50. Address, 26A14T John Nebel & Son, High Hill, Mo.
Mention the American Bee Journal.

75 COLONIES of Italian and Hybrid Bees for sale, or trade for land; in A. I. Root's Simplicity hives, 10 frame, L. F. Nearly all wired, and nice straight combs. Everything on the most improved modern principles. I am changing climate for my health, is the reason for my selling.

28A14T **E. SANDFORD**, NOKOMIS, ILLS.
Mention the American Bee Journal.